



1. Project Name: Kahului DDH
2. Date of Inspection: May 13, 2005
3. Inspection Personnel:

<u>Name</u>	<u>Agency/Office</u>	<u>Telephone No.</u>
a. <u>Dan Meyers</u>	<u>COE</u>	<u>438-8875</u>
4. Discussion:

Prior to the inspection I met with Mr. Stephen Pfister, Harbor Master, Kahului DDH, 873-3354. Pfister said the only recent work was the completion of the walkway / dolphin adjacent the east breakwater and the current COE's dredging / construction at the Kahului SBH. Following the meeting an inspections of the East B/W, and the West B/W were conducted. See photo below:





The noted discrepancies are as follows:

EAST BREAKWATER



a. Newly established Station 0+00.



b. Sta. 0+20, Overview, no deficiencies noted.



Note: Lightpole 18 = Sta 2+18



c. Sta 3+08, HS, Cracked armor stone.



d. Sta 3+20, Curve #1, Overview of Oceanside looking back toward root.



Note: Lightpole 15 = Sta 4+90



e. Sta 4+90, Lightpole # 15, Overview facing root.



f. Sta 4+90, Overview looking toward head.



g. Sta 7+44 (Lightpole 12), Overview facing head.



h. Sta. 9+70 (Lightpole 9), Overview facing head.



i. Sta 11+95, End of new repair. Overview facing root.



j. Sta 13+08, HS, Cracked armor stone.



k. Sta 13+43, OS, adjacent stones not from structure.



l. Sta. 14+11, OS, Dislodged armor stone at toe.



m. Sta 14+90, Bridging of armor stone at crest

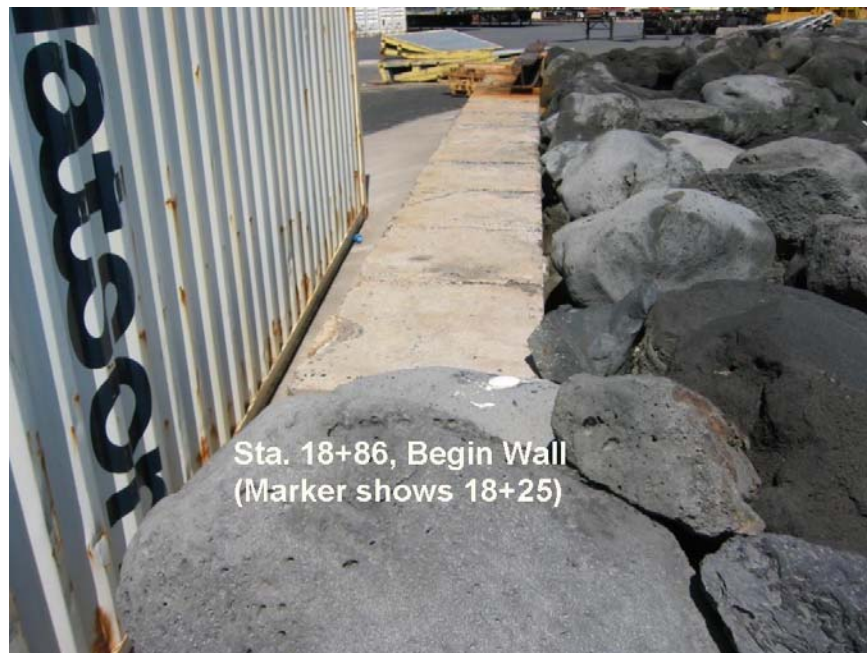
NOTE: Marker at 15+00



n. Sta. 17+05, Crest, Minor Settling.



o. Sta 17+09, Distinguishable stone noted for measurement purposes only.



p. Sta 18+86, Beginning of wall and overview.

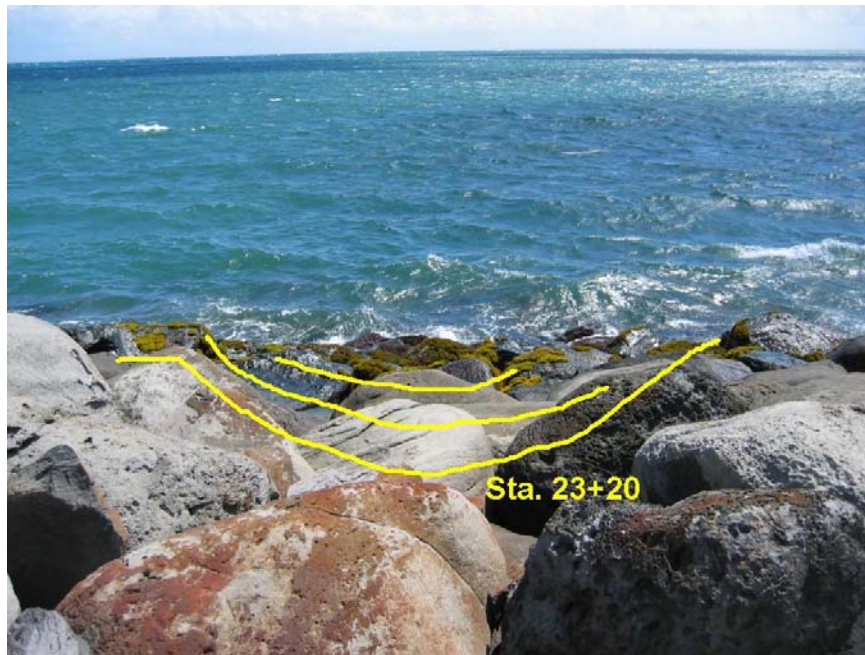


q. Sta 19+00 to 21+00 (end of wall), OS, Monitor sideslope flattening in this area.

Note: Station 21+85, Air survey marker



r. Sta 22+40, OS, Crest elevation drops due to repair beginning/end, monitor sideslope flattening.



s. Sta 23+20, OS, Slight settling, monitor.



t. Sta 23+20 to 24+67, settling of entire section, monitor.
Flipped armor stone at Sta 24+50



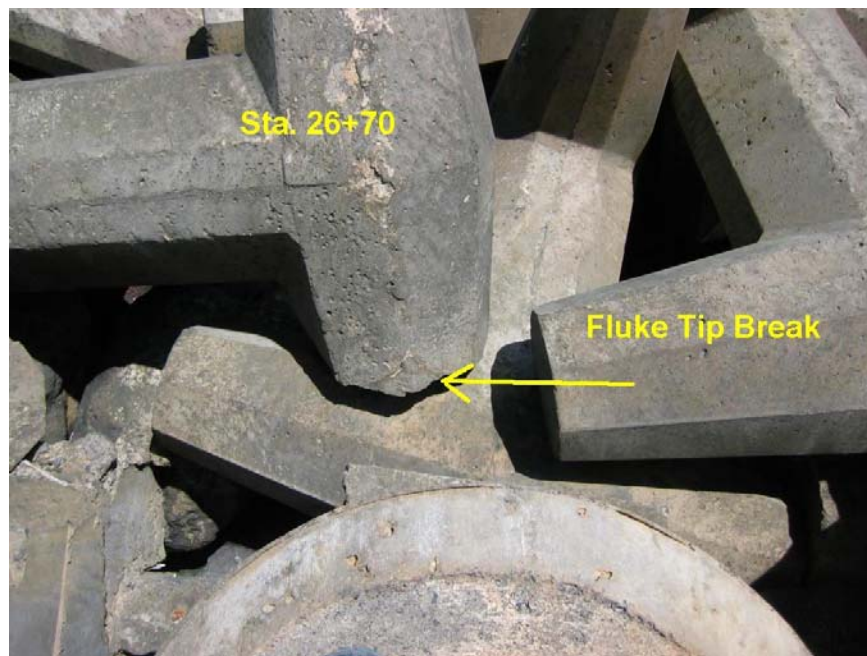
u. Sta 26+26 (begin ribcap), State Harbor's Extension of Pier 1, HS of B/W.



v. Sta. 26+26, HS, New dolphin and walkway adjacent B/W.



w. Sta. 26+26, HS, Eroded sideslope protection adjacent dock.
(This was brought to the Harbormaster's attention during the
out briefing).



x. Sta. 26+70 (Rib 8), OS, Fluke tip break.



y. Sta 26+92 (Rib 12), Straight shank fluke break.



z. Sta 26+30, OS, Overview of steepened side slope.



aa. Sta. 26+97 (Rib 13), Mid-shank break and shank-fluke break.



bb. Sta 27+09 (Rib 15), Shank-fluke breaks (2 ea.).



cc. Sta. 27+16 (Rib 16), HS, Tribar separation from ribcap.



dd. Sta. 27+19 (Rib 17), OS, Straight shank fluke break.



ee. Sta 27+19, OS, Overview of side slope.



ff. Sta 27+51 (Rib 20), HS, Overview and broken tribar.



gg. Sta 27+69 (Rib 23), OS, three broken dolos.



hh. Sta 28+10 (Rib 29), OS, dolo separation 10" from RC.



ii. Sta 28+28, Rib # 32, Red cross painted.



jj. Sta 29+27 (Rib 40), Centerline of first turnaround.
Settling of armor stone causing ribcap to be unsupported.



kk. Sta 30+00, OS, Overview.



ll. Sta 30+30 (Rib 58), Red cross painted.

Note: Sta 30+67 (Rib 64), Red cross and beginning of OS tribars.



mm. Sta 30+97 (Rib 69) to Sta 31+43 (Rib 76), OS, 10 ft Tribar separation from ribcap.



nn. Sta 31+50 (Rib 77) to Sta 32+04 (Rib 86), 8 ft Tribar separation from ribcap.



oo. Sta 32+16 (Rib 88), OS, Cracked/spalling ribcap, red cross painted.



pp. Sta 32+85, Broken tribar leg.

Note: Sta 33+60 (Rib 101) is CL of 2nd turnaround.



qq. Sta. 33+70, Rib cap spalling.



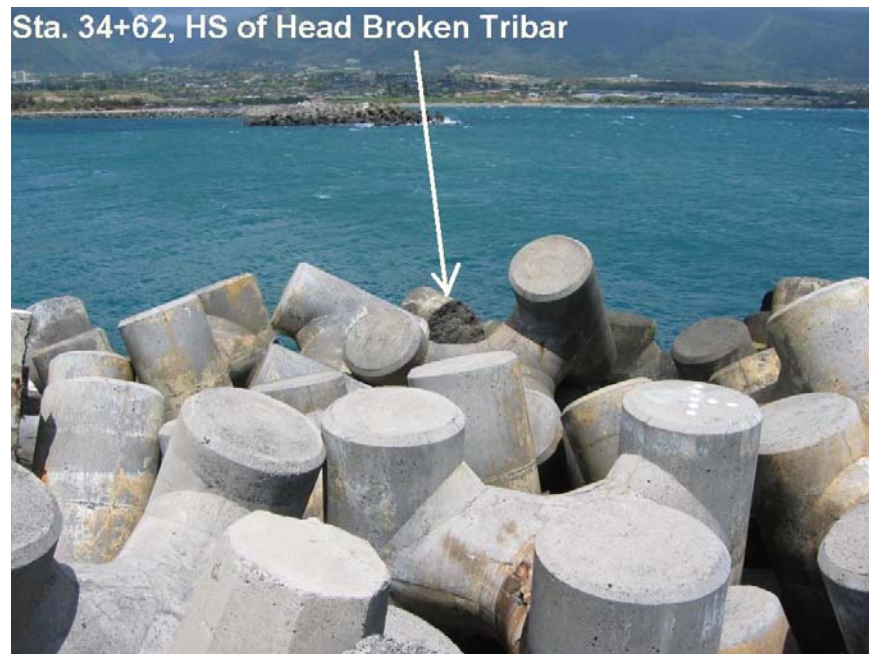
rr. Sta 33+78 (Rib 104), OS, Angle shank-fluke break.



Note: Sta 34+27 (Rib 111), Aerial Cross.
Sta 34+50 (Rib 114), End of ribcap.



ss. Sta 33+99, HS, Overview.



tt. Sta 34+62, HS, Broken tribar.



uu. Sta 35+02, Straight shank-fluke break.



vv. 0S degree view from head.



ww. View of East Breakwater head.



WEST BREAKWATER:

Note: Jersey barriers have been installed at the root of the breakwater the road by either Hawaii DOT or Maui County DPW.



a. Overview of structure @ Sta. 1+30



b. Sta 2+41, OS, Flipped armor stone.



c. Sta 2+70, OS, Flipped armor stone.



d. Sta 3+20, OS, Flipped armor stone.



e. Sta 5+30, Overview of structure and adjacent area.



f. Sta 9+70, Overview of structure and displaced small stones.



g. Tribar washed back from trunk of structure.



h. New scour noted at HS of structure root.



- i. Sta 17+41, OS, Sideslope steepening, monitor armor stones adjacent to toe.



- j. Sta 17+85 (Rib 6), HS, Broken tribar.



k. Sta. 18+50, HS, Broken tribar, no change this year.



l. Sta 18+50 (Rib 14), OS, 8" separation of tribar from RC.



m. Sta 19+00 (Rib 18), OS, 4" separation and broken tribar.



n. Sta 19+00 (Rib 18), HS, Overview.



o. Sta 19+41 (Rib 30), Red cross painted and ribcap spalling.



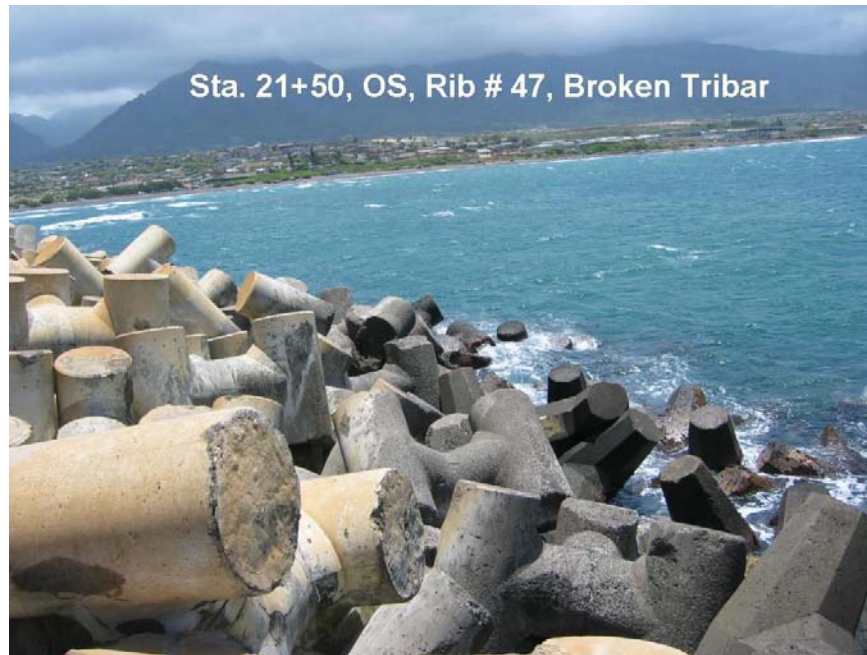
p. Sta 20+87 (Rib 40), HS, Cracked tribar.



q. Sta 21+42 (Rib 44), OS, Broken tribar.



r. Sta. 21+50, OS, (Rib 47), Broken Tribar, adj ribcap.



s. Sta. 21+50, OS, (Rib 7), Broken Tribars on sideslope.



t. Sta. 21+42 to 21+60, OS, 4 broken dolos/tribars.



u. Sta. 21+42 to 21+60, OS, 4 broken dolos/tribars.



v. Sta. 21+42 to 21+60, OS, 4 broken dolos/tribars.



Note: 21+60, End of ribcap.



w. Sta. 21+60, HS, Cracked tribar.



x. Sta. 21+60, OS, Overview to head.



y. Sta. 21+60, OS, Overview toward root.



z. Sta. 21+96, OS, Broken tribar.



aa. Sta. 22+74, OS, Broken dolo, shank-fluke break.



bb . Sta. 22+84, OS, Broken dolo, shank-fluke break.



cc. Sta. 22+94, OS, Broken dolo, shank break.

Note: Sta 23+08, Navigation Aid.



dd. Sta. 23+14, OS, 3 shank breaks.



ee. Sta. 23+14, OS, 3 shank breaks.



ff. Sta. 23+14, OS, 3 shank breaks.

Note: Sta. 23+28, End concrete
Sta. 23+38, Aerial Survey Marker



gg. Head, OS, 2 Shank breaks at 40 degrees.



hh. Head, OS, 2 Shank breaks at 40 degrees.



ii. Head, OS, 2 Shank breaks at 40 degrees.



jj. Head, 10 degrees HS, Fluke break.



kk. Head, Tribar rusted at center.

Note: Head settling at 0 to 40 degrees harborside.



ll. Overview looking back from head.



mm. Head of West Breakwater.

5. Conclusion:

BOTH BREAKWATERS ARE CONTINUING TO SHOW SIGNS OF DOLO MOVEMENT AND SIDESLOPE SETTLING, PARTICULARLY BETWEEN STA. 22+50 - 23+00, OCEANSIDE OF THE WEST B/W (STATION NUMBERS WERE NOT RECORDED) AND SEPARATION AT STA. 26+00 & STA. 29+00, OCEANSIDE OF THE EAST B/W. THESE AREAS OF DETERIORATION NEED TO BE MONITORED AND COMPARED TO PREVIOUS PHOTOGRAPHS ANNUALLY. THE STRUCTURE REMAINS SERVICEABLE. NAVIGATION AIDS ARE IN GOOD CONDITION.

Signed: _____
Dan Meyers, CEPOH-EC-T

Signed: _____
Jim Pennaz P.E., Ch, CEPOH-EC-T

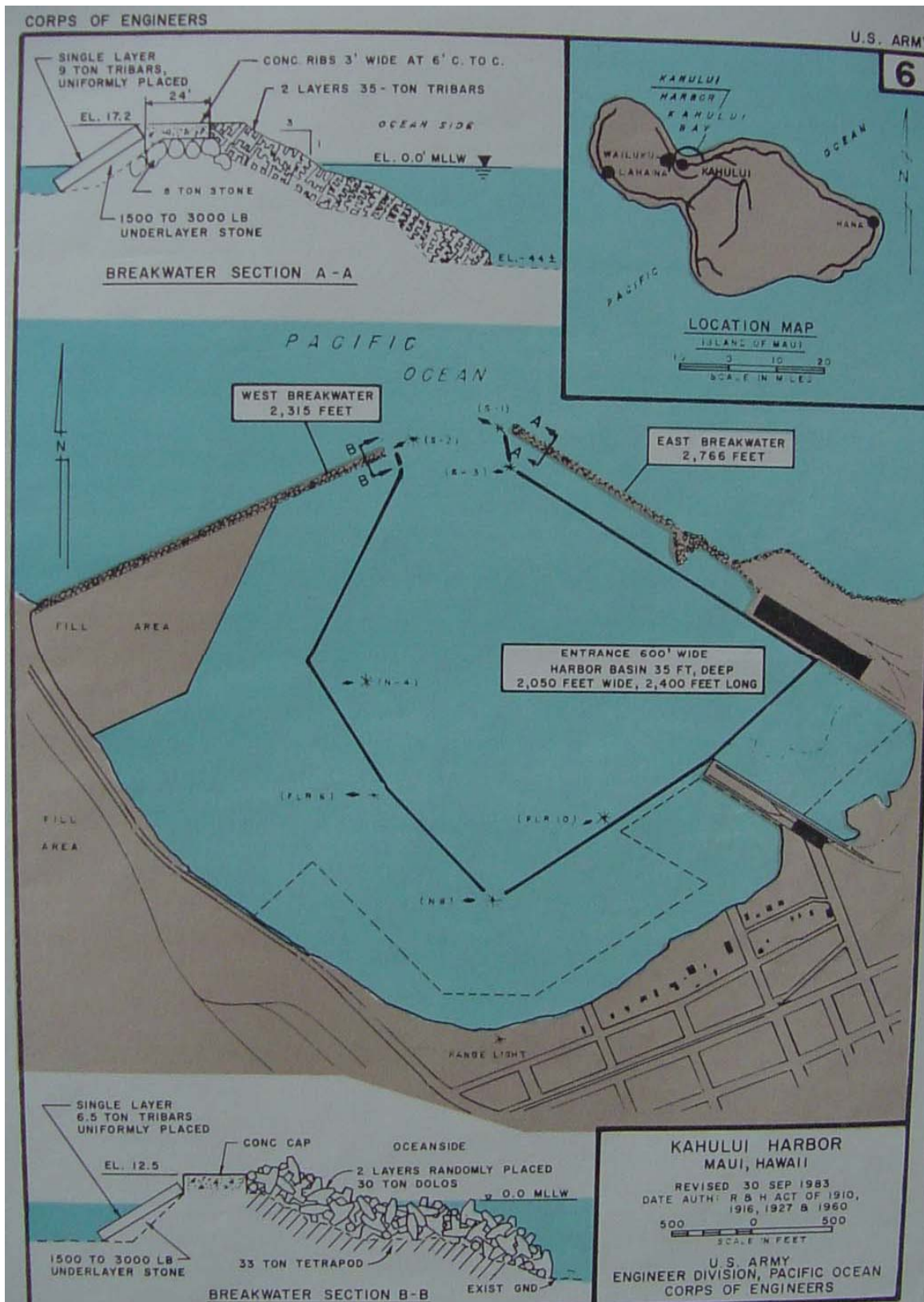


O & M INSPECTION REPORT FOR NAVIGATION PROJECTS

Honolulu Engineer District

CEPOH-EC-T

KahuluiDDH05rpt-sbh.doc





KAHULUI HARBOR, MAUI, HAWAII

CONDITION OF IMPROVEMENT 30 SEPTEMBER 1991

PREVIOUS PROJECTS: Authorized by the River and Harbor Acts of 25 June 1919, 27 July 1916, and 21 January 1927.

EXISTING PROJECT: Authorized by the River and Harbor Act of 14 July 1960. Provides for an east rubblemound breakwater 2,766 feet long; a west rubblemound breakwater 2,315 feet long; an entrance 600 feet wide between the breakwaters; and a harbor basin 2,400 feet long, 2,050 feet wide and 35 feet deep.

PROGRESS OF WORK

Completed and Under Maintenance: All improvements authorized prior to 1960 were completed in 1931. Work authorized by the Act of 1960 was completed in 1962, except the removal of a rocky shoal area in the northeast edge of the basin which was completed in 1966. Rehabilitation of breakwater was completed in 1966; rehabilitation of breakwater damages was completed in 1969 and breakwater damages repaired in 1973 and 1977. Major rehabilitation of the breakwater was completed in December 1983. Last maintenance dredging was completed in April 1990; total material dredged was 58,000 cubic yards.

Work Remaining: None.

COST OF CONSTRUCTION:

	<u>New Work</u>	<u>Maintenance</u>	<u>Rehabilitation</u>	<u>Total</u>
<u>Completed Works:</u>				
United States Funds	\$2,388,693	\$7,287,654	\$4,814,528	\$14,490,875
Contributed Funds				
Required	<u>30,200</u>	<u>0</u>	<u>0</u>	<u>30,200</u>
Total Costs	\$2,418,893	\$7,287,654	\$4,814,528	\$14,521,075

RANGE OF TIDES: The range of tide between mean lower low water and mean higher high water is 2.5 feet and the extreme range is 4.8 feet.